

## Map Unit Properties Table

Age	Map Unit (Symbol)	Unit Description	Erosion Resistance	Suitability for Development	Hazards	Cultural Resources	Mineral Occurrence	Habitat	Recreation	Global Significance
HOLOCENE	Alluvium (Qal)	Mainly present as lake and stream deposits including modern and elevated beach layers; unit is often mapped as swamps, bogs, and beaver ponds	Low	Suitable for most development unless wetland is present, or unit is exposed on a slope, too porous for waste facilities	Slumps, slides, and slope creep	Native American campsites	Sand, gravel, clay, silt	Unit supports forest, riparian habitat, and wetland areas	Good for most recreation unless near vulnerable wetlands or exposed on slopes	None documented
PLEISTOCENE - HOLOCENE	Talus, slopewash and glacial drift (Qts)	Variety of surficial deposits including glacially transported debris, some elevated beach deposits, mainly present on western third of Isle Royale.	Low	Suitable for most development unless wetland is present, or unit is exposed on a slope, too porous for waste facilities	Slumps, slides, and slope creep	Native American campsites	Beach deposits, loess	Unit supports forests	Good for most recreational uses, unless exposed on slopes	Contains record of last major glacial episode and retreat
PLEISTOCENE	Glacial till (Qg)	Glacial till composed of clays and assorted grain size fragments in ice-margin deposits formed during last ice age retreat.	Low to medium low	Avoid development on this unit if exposed on slope or if clay content is high	Slumps, slides, and slope creep	Native American campsites	Sand, gravel, clay, silt	Unit supports forests	Good for most recreational uses, unless exposed on slopes	Contains record of last major glacial episode
PROTEROZOIC	Copper Harbor Conglomerate: undivided (cu); chiefly conglomerate (cc); boulder and pebble conglomerate (cb); pebble conglomerate (cp); chiefly sandstone (cs)	Interlayered conglomerate and sandstone composed primarily of fragments from felsic (high silica-aluminum) and mafic (low silica, high iron-magnesium) volcanic rocks. cb contains discontinuous beds of reddish pebble conglomerate and sandstone; cp contains arkosic conglomerate in thin to massive beds with interbedded sandstone; cs contains more sandstone interbeds than cp	Medium	Avoid layers with high fracture density and heterogeneity for facilities development	Loose packed, calcite cement between large fragments may render the unit unstable. Highly jointed units may pose rockfall hazard.	None documented	Agates; volcanic rocks including basalt, andesite, trachyte, latite, quartz latite, and rhyolite	Supports northern hardwood forests	Good for most recreational uses unless carbonate cement is degraded rendering outcrops friable	Records vast sedimentary basin during Precambrian transition with underlying volcanics records cessation of rifting
PROTEROZOIC	Portage Lake Volcanics: lava flows, undivided (pu); sandstone and conglomerate (psc); pyroclastic rocks (ppP)	Sequences of basalt (mafic) and andesite (more felsic) lava flows interbedded with interval volcanic sedimentary deposits such as sandstone and coarse conglomerates and pyroclastic flows.	Medium to high	Avoid layers with high slopes and high fracture density	If unit is highly fractured and exposed on a slope, rockfall hazards exist	Native American copper mine sites and camps with assorted artifacts	barite, calcite, chlorite, native copper, datolite, epidote, laumontite, natrolite, prehnite, chlorastrolite (pumpellyite), quartz (including agate), and thomsonite	Vesicles and vugs in lava flows may provide nesting – burrow habitat, in NE exposures, units support coniferous boreal forests	Good for most recreational uses unless highly fractured and undercut	Records midcontinental rift environment during the Precambrian age, contains rare minerals such as Michigan state mineral: chlorastrolite
PROTEROZOIC	Flows within Portage Lake Volcanics: Scoville Point Flow (psp); Edwards Island Flow (pei); Middle Point Flow (pmp); Long Island Flow (pli); Tobin Harbor Flow (pth); Washington Island Flow (Pwi)	psp contains blocky plagioclase phenocrysts in a fine-grained matrix; pei & pli have polygonal joints & well-developed columnar structure; pmp is porphyritic with phenocrysts scattered randomly; pth is porphyritic similar to pmp and psp; pwi is an ophite (rocks with crystals of pyroxene enclosing unoriented plagioclase laths) with abundant clots of dark green chlorite and sparse plagioclase phenocrysts (up to 1 cm).	Medium to high	Avoid layers with high slopes and high fracture density	If unit is highly fractured and exposed on a slope, rockfall hazards exist	Native American copper mine sites and camps with assorted artifacts	The Long Island Flow (pli) contains blue agates; native copper in lode deposits and fissure deposits	Vesicles and vugs in lava flows may provide nesting – burrow habitat, in NE exposures, units support coniferous boreal forests	Good for most recreational uses unless highly fractured and undercut	Records midcontinental rift environment during the Precambrian age
PROTEROZOIC	Flows within Portage Lake Volcanics (cont.): Greenstone Flow (pg); Grace Island Flow (pgi); Minong Flow (pm); Huginnia Flow (ph); Hill Point Flow (php); Amygdaloid Island Flow (pai)	pg is a differentiated flow with a coarsely ophitic basal layer, pegmatitic (typically with mat of prominent plagioclase laths) coarse-grained central layer and a medium to finely ophitic upper layer with columnar jointing; pgi is a porphyritic lava flow with clumped lath-shaped plagioclase phenocrysts (2 cm) in a fine-grained matrix; pm contains scattered agates with typical whitish to light bluish tint; ph is a porphyritic lava flow similar to pgi; php is a coarse grained ophite; pai contains abundant reddish agates and coarsely crystalline quartz cores.	Medium to high	Avoid layers with high slopes and high fracture density	If unit is highly fractured and exposed on a slope, rockfall hazards exist	Native American copper mine sites and camps with assorted artifacts	Agate (chalcedony); Amygdaloid Island Flow (pai) contains pinkish agates Native copper in lode deposits and fissure deposits	Vesicles and vugs in lava flows may provide nesting burrow habitat, in NE exposures, units support coniferous boreal forests	Good for most recreational uses unless highly fractured and undercut	Records midcontinent rift environment during the Precambrian